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REVIEW OF THE PROCEEDINGS OF THE ANTHROPOLOGICAL SOCIETY OF PARIS.*

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Delivered June 4th, 1863.

GENTLEMEN,—Called upon to address you on this solemn occasion, when the Anthropological Society, after an existence of four years, celebrates, for the first time, the anniversary of its foundation, I purpose to retrace the history of your labours, to show what you have done for the progress of our science, and the great and legitimate part you have taken in the promotion of ideas and studies, which have been too long neglected.

Anthropology, as you conceive and cultivate it, is the youngest of all sciences; and we may well feel surprised at its late birth. Is there among subjects accessible to scientific investigations, one which can compare in interest or importance with the science which attracts you to this hall?

Would it not appear that man, before inquiring into the objects which surround him, should rather follow the precept of the wisest of Greeks, and endeavour to know himself? But humanity in its evolution resembles the child, which at first careless of his own being, is only curious in regard to surrounding phenomena; and who, at a later period, proud though ingenuous, more attentive to external objects than to the process of his thoughts, admires himself, without taking the trouble of self-observation, and remaining in ignorance of his own self, perceives, when he arrives at adult age, that he has seen, scrutinized, and analyzed every thing except his own nature. Such, and slower still, is the progress of knowledge in humanity, which has studied everything excepting itself.

As humanity had, even before the commencement of civilization, lost the remembrance of her humble origin, and found herself already at the first dawn of the sciences, the queen and mistress of this planet, she was apt to believe that she was born in all her force and splendour; that the earth was her patrimony and not her conquest;

* Having been favoured with a copy of M. Broca's admirable address, we have much pleasure in inserting a translation of it *in extenso*, though we are from its length compelled to omit several interesting articles intended for this number.
EDITOR.

that the three kingdoms of nature had only been created for her service and pleasure: the stars to furnish her with light; the days and nights to divide her time; and the seasons to secure her harvests;—in one word, she was apt to believe that the universe had only been created for her; and so long as she conserved that illusion, she feared to disgrace and to lower herself to the level of brutes, by submitting to description, classification, and to the methods of investigation of natural history.

It was only in the last century that, guided by a sounder philosophy, men of science ventured to take up anthropological studies. Whilst Linnæus assigned to man a place in his zoological classification, Buffon wrote his *Natural History of Man*, and the first monument of our science became one of the masterpieces of our literature. But we should in vain, in these immortal pages, look for the precise and rigorous facts which we now exact. Though Buffon describes, as well as it was then possible, the physical characters of peoples, and the varieties of form, stature, and colour which distinguish them, still he was, from the want of sufficient authorities, unable to group and classify these varieties, and to arrive at a proper notion of *race*. This was the work of Blumenbach, who, with more ample means of information and taking the new science of craniology as a basis, established in the *genus homo* methodical divisions, and gave, for the first time, that, without which no science can be established, viz., a nomenclature. Buffon had laid the foundations of a *Natural History of Man*, and of *Ethnography*, or description of peoples; Blumenbach laid down the basis of *Ethnology*, or the science of races.

The distinction of races being admitted, an immense field for investigation opened at once. It was not merely requisite to complete or to rectify the classification and the descriptions of Blumenbach, but to inquire into the origin of permanent varieties, hereditary types,—characters so diversified, and yet so graduated, which distinguish the races. For this purpose, it was first necessary to study the influence of external conditions, such as climate, alimentation, mode of life, etc., on the human organism; to inquire how far these different agents were capable of modifying the individual or the race; and within what limits the laws of heredity and atavism maintained these varieties. It was then requisite to determine the filiation of the peoples, to trace the course of their migrations and intermixture, to interrogate their monuments, history, and traditions; to follow them up beyond the historical period, so as to arrive at

their cradle. All these were entirely new questions and new problems, which until then had not been put to science; and these multiplied and unlimited investigations, which require the simultaneous concurrence of zoology, anatomy, physiology, philology, and palæontology, must converge to constitute the science of man, or anthropology.

Such is the mission bequeathed by the eighteenth century to our own. But who, sixty years ago, would have tried to carry out this programme would have spent his life in useless efforts. The hour had not yet arrived; before grouping the sciences they must have been acquired; and some of those tributary to anthropology were not sufficiently advanced to furnish it with a fulcrum. Comparative philology just made its *débat*; archæology had as yet not extended its domain beyond the limits of Western Europe; and palæontology and geology, these twin sisters, were as yet scarcely able to walk. All the ages which preceded the historical period were thus inaccessible to the student, and classical history itself, which criticism had not yet purged, nor a free examination emancipated from the theological yoke,—this history itself confined the past of humanity within a factitious frame, in a restrictive chronology; a modern bed of Procrustes, in which the most important facts regarding the life of primitive peoples could only be admitted, shortened and mutilated.

To found anthropology upon its veritable basis was then impossible, and we cannot but admire the prodigious intellectual movement which within half a century has prepared the soil upon which we now build. Never had human knowledge grown so much within so short a period. At no time had the spirit of inquiry displayed itself with such might, in every direction. The impassible Egyptian sphynx has revealed his mysteries; the antiquities of America, these patents of nobility of a world which we cannot any more call new, have displayed before our eyes unexpected marvels; and Nineveh and Babylon, exhumed from their coffins, now speak again. The superficial strata of our planet, perseveringly interrogated, have opened like the pages of a book, where the three kingdoms of nature have their archives, where every species before disappearing left its mark; where man himself, so late in coming, has yet left the proofs of his antique existence; and the pages of this immense book tell the history of innumerable beings, which from epoch to epoch, like the runners in the circus, successively transmitted to each other the torch of life—

“Et, quasi cursores, vitæ lampada tradunt.” (Lucr. ii, 79.)

Whilst archæologists and palæontologists reanimated the material

remains of the past, other scholars ascended the chain of centuries by a different road; they resuscitated the dead languages, and recovered in these immaterial organisms, in these fossils of human thought, the pre-historic annals of the peoples; the proofs of their forgotten migrations, of their unknown filiations, the *débris* of their first creeds, and the impress of the various phases of their intellectual, industrial, and social evolution.

In this incomparable half century, which has seen so many discoveries, which has explained so many enigmas, which has transmitted to us precious documents, as to the past of humanity; the study of human races has become enriched with an enormous mass of facts. Africa, always inhospitable, has ceased to be impenetrable; the Australian continent has been explored; European ships carry our seamen or missionaries, and our philosophers to every coast.

Nearly all the peoples on the globe have been observed, described, represented in pictures, studied in their manners, industry, language, religion, and traditions; our museums have received their remains; and casts, skulls, and skeletons, brought from all parts of the globe, have rendered the study of the most distant races accessible to the sedentary philosopher.

Each has in his own way profited by this rich harvest. Some, the pure naturalists, exclusively occupied with the zoological question, have tried to correct and complete the classification of human races; others, still more special, have concentrated their attention on craniology, and have made this science, founded by Blumenbach and Camper, the basis of anthropological studies. Others, finally, ignoring the proceedings of natural history and anatomy, have subordinated the physical characters of races, and have given the preference to the characters drawn from comparative philology. These isolated researches in the various branches of the science of man, have, no doubt, been fruitful. Many particular questions have been better fathomed by being treated exclusively, and the number of demonstrated facts was considerably increased thereby; but this was not sufficient for the formation of a fascicle of methodically connected branches, which alone in the present day can constitute a science. The various branches of anthropology were already in existence, but anthropology itself, towards which they were to converge, did not yet exist, and to give it organization and life, more was required than individual efforts. Where was the mind universal enough to embrace so many branches of knowledge, and capable of co-ordinating them? The combined genius of Aristotle, Haller, and Humboldt, would not have

sufficed. That vivifying principle of our epoch, even more fertile in the field of intelligence than in that of material progress, association alone, can attain this object, and it is for this purpose, gentlemen, that the Anthropological Society has been formed.

We cannot, certainly, flatter ourselves to have been the first who perceived the necessity of uniting into a single bundle all the branches of anthropology, nor of having first attempted it. Many others before us have traced out such a programme with varied success. M. Boudin, our last year's president, in his inaugural address, acquainted you with the manifesto of the "Society of the observers of Man," which was founded in Paris at the beginning of this century, upon principles differing but little from ours, but which, as it was before its time, could not definitively be constituted.

In England, the learned Prichard, that indefatigable inquirer whose glory nearly equals that of Blumenbach, devoted his long life and his eminent faculties to the composition and publication of a great, and still unrivalled work, in which natural history, ethnography, and philology mutually support each other. In France, the illustrious William Edwards, who opened a new path by studying for the first time *the physiological characters of human races considered in their relation to history*, founded in 1839—a memorable date—a society whose name and remembrance will not perish—"the Ethnological Society." To study at the same time "the organization of human races, their intellectual and moral character, their languages and historical traditions, so as to constitute upon these veritable bases the science of ethnology," was the object of this society which prospered for several years, and whose remarkable labours have exercised so striking an influence on the evolution of anthropology. Foreign philosophers soon became anxious to follow our example. *The Ethnological Society of London*, and the *Ethnological Society of New York*, were organized on the same plan, in the same spirit, and on the same programme as that of Paris.

But this programme, gentlemen, was not yet complete; it was that of ethnology or the science of human races, and not that of anthropology or the science of man. To describe and classify the actual races, to point out their analogies and differences, to study their aptitudes and manners, to determine their filiation by blood and language, is no doubt to run over much ground in the field of anthropology; but there remain higher and more general questions. All the human races, in spite of their diversity, form a great whole, a great harmonic group, and it is important to examine the group in its *en-*

semble, to determine its position in the series of beings, its relations with other groups of nature, its common characters, whether in the anatomical and physiological, or in the intellectual order. It is not less necessary to study the laws which preside in maintaining or changing these characters, to appreciate the action of external conditions, the changes of climate, the phenomena of hereditary transmission, and the extreme influences of consanguinity and ethnic intermixtures; these are great and manifold questions within the sphere of natural history and general biology. Finally, in a more elevated sphere, and without venturing to attain the regions which conceal the problem of origin (a fascinating and, perhaps, insoluble problem), our science eagerly searches for the first traces of man's appearance on the earth, it studies the most ancient remains of his industry, and gradually descending from incalculably remote epochs towards the historical period, it follows humanity in its slow evolution, in the successive stages of its progress, in its inventions, in its struggles with the organic world, and its conquests over nature.

Ethnology, is then, only a part of the science of man; the other part is "general anthropology," which has occupied so large a place in your labours. It is by this, gentlemen, that our society is distinguished from those which preceded it, and it is for this reason that it has adopted the name of the *Anthropological Society*. Here again, the example set by France was not long in being followed by foreign philosophers. It is scarcely four years that we have entered this path, and already have we seen arise in Germany, the *Anthropological Congress*, founded by Professors Wagner and de Baer; in England there was, a few months since, founded the *Anthropological Society of London*, under the presidency of our eminent colleague Dr. James Hunt. And I entertain the conviction that the successors of Morton will find it necessary to organize in the United States an Anthropological Society, as soon as the civil war which desolates their country shall cease. Henceforth general anthropology and ethnology form but one science,—the most noble of all sciences, since it has for its object humanity, considered not only in itself but in its relations to the rest of nature.

I thought it my duty, gentlemen, to cast a rapid glance on the principal phases through which the science of man has passed up to our time and to point out the mode in which you have conceived it, in order better to show the impulse you have given to it. I wished first to expose the object and the plan of your labours; for the success of an undertaking depends above all on the solidity of its foundations.

But it no less depends on the perseverance and activity of those who devote themselves to the task; I shall, therefore, endeavour to show how you have acquitted yourselves of the mission imposed upon you.

You will not, gentlemen, expect from me even a summary analysis of all the memoirs, communications, and discussions which have occupied your meetings. You have discussed so many facts, that I should tax your patience to present to you a *résumé* of the collective labours which already fill a volume of *Mémoires* and more than three volumes of *Bulletins*. I was, therefore, obliged to confine myself to select among the subjects of your researches some few which by their novelty or importance appeared to me to have particularly excited your attention. You must have given me too many proofs of your indulgence to induce me to make such a selection, upon which I should never have ventured, if I had not found it materially impossible to submit to you a complete review of all that you have done during the past four years. Some other time, when the periodical return of our solemn meetings may restrict the report to one year, I might be able to strike the balance of your labours in a more equitable manner.

In order to put something like order in my exposition, I purpose first to examine the facts relative to ethnology properly so called, and to reserve for the end those which concern general anthropology. But it would be vain if I were to endeavour establishing an absolute separation between these two great branches of our science; for many complex questions pertain to both. It will, therefore, frequently happen, that I shall have to transgress the line of demarcation which I have just traced.

I. ETHNOLOGY.—Ethnology, or the science of human races, comprises the study of their distinctive characters and of their classification, their languages, their manners, creeds, industry and arts, and the part they play in history. There are none of these subjects upon which you have not thrown some light by your discussions and researches. You have brought to bear upon them the contingent of your special knowledge, some as naturalists or anatomists, others as philosophers, archæologists, or linguists.

The illustrious *savant* who two years since occupied this chair as president, and whose death has left such a gap in our ranks, Isidore Geoffroy Saint-Hilaire, has presented us with a memoir "*on anthropological classification, and the principal types of mankind*"—a masterly work, in which he sums up the results of thirty years' researches. Having passed in review the classifications of his predecessors, and the principles upon which they were founded, and having shown that

the most apparent distinctive characters are not always those possessing the greatest value, and according the pre-eminence to the characters of the conformation of the head, M. Geoffroy Saint-Hilaire points out that it is not sufficient to divide mankind into a certain number of races, and that the distinction rests sometimes upon first class, and sometimes upon much less significative characters, and that consequently a scheme in which all the races are disposed in the same rank, is not conformable to the principles of natural history. To obviate this inconvenience, principal and secondary races have been admitted; but there results from this a continual confusion in language, and hazardous conclusions in science, as it leads to consider all the secondary races to have descended from the same anthropological stock, which by their re-union formed a principal race; and this would suppose as demonstrated what yet remained to be proved. Thus, the great Mongolian race of authors comprises the Tartars, Chinese, Malays, Polynesians, Hyperboreans, Paraboreans, all the aborigines of America, whilst the filiation of these different races, and their immediate parentage, are yet problematical.

M. Geoffroy Saint-Hilaire, therefore, thinks that the primary division of mankind, established upon distinctive characters of the first class, constitutes *types*, and not *races*, and that the determination of these types should be founded upon the conformation of the head.

The types which he admits are four in number: the *Caucasian* type is characterized by the predominance of the superior parts of the head, that is to say the region of the brain; the *Mongolian* type, by the predominance of the middle part of the head, namely, the superior region of the face; the *Ethiopian* type, by the predominance of the inferior parts of the face, the region of the jaws; and the fourth, the *Hottentot* type, by the predominance of the whole region of the face. The two elements serving to determine the relative development of the facial regions are: the breadth of that region measured by the prominence of the cheek bone, and its antero-posterior extension measured by its obliquity, or by its forward projection beyond the region of the brain. The terms *orthognathic* and *prognathic*, now become classical, clearly express the latter character. In order to express the first, namely, the transversal development of the superior part of the face, M. Geoffroy Saint-Hilaire has coined the term *eurygnathic*; and thus has been enabled to characterize in a few words the four types of mankind. The Caucasian type is orthognathous; the Mongolian type Eurygnathous; the Ethiopian type prognathous; and finally, the Hottentot type is both eurygnathous and prognathous.

All the races known may easily and naturally be divided into these four types, and those of each group are distinguished between themselves by characters sufficiently marked to enable him to dichotomize them. His synoptic scheme comprises only twelve races ; but he has only admitted those best known, without pretending to give this number as definitive.

Among the races comprised in the classification of our illustrious colleague, there figure separately the *hyperborean* and the *paraborean* races, which are confounded in all previous classifications. All the peoples near the polar ocean, from Lapland to Kamtschatka, from Kamtschatka to Greenland, have been considered as forming one single race. It was supposed that living as they do beyond the arctic circle, in the same conditions of light and heat, in the midst of a flora and fauna, the relative uniformity of which is well known to naturalists,—it was supposed, I repeat, that all these peoples ought to have acquired a similar organization and the same physical type ; hence they were considered as one race—a secondary race, emanated from the stock common to the Mongolian races. But this view, apparently confirmed by the observation of some superficial characters, was not founded upon the study of first-class characters ; and it must be acknowledged that the admission of the anthropological identity of the polar races of Europe, Asia, and America, was somewhat lightly made. The expedition of Prince Napoleon to the northern seas has enriched the gallery of the museum with a series of crania, which has disposed of that illusion. Our colleague M. Henry Guérault, one of the surgeons of that expedition, was struck with the considerable differences obtaining between the cranium of a Laplander and that of an Esquimaux. From the very exact and complete description which he has published in our *Mémoires*, it results that the two peoples approach the Mongolian type, the first by the globular form of the cranium, the second by the disposition termed *pyramidal* ; but that these two characters, which are combined in the Mongolians properly so called, are not so in the hyperboreans (sitting of March 15, 1860). There are thus at least two hyperborean races ; and this discovery, made by M. Guérault during his voyage, has been confirmed by Geoffroy Saint-Hilaire, who, reserving for the hyperboreans of Europe the name hyperborean race, has designated the Esquimaux the *paraborean* race. Do all the peoples disseminated beyond the polar circle, on the borders of the glacial ocean, pertain to either of these two races ? This is a question the solution of which requires ulterior researches.

You have received communications on the ethnology of nearly every part of the globe, either from your correspondents, or from your own members. In order to facilitate and popularize the researches, to give them as much as possible an uniform direction, and to render the observations collected by individuals unknown to each other comparable, you have paid particular attention to the drawing up of instructions destined for the guidance of travellers. The instructions for Peru, Mexico, Brazil, Senegal, and France, have already been published. Those concerning Northern Africa, Chili, Indo-China, are being prepared. These instructions are not simple interrogatories; your commissioners wished that the traveller, though a complete stranger to our studies, should find therein a summary of ethnological facts relative to the country he was about to explore; and in this didactic exposition attention is drawn to doubtful, contested, or unknown points, and especially to such of greater importance.

Our venerable colleague M. Gosse, senior, so well known by his excellent researches on artificial deformation of the cranium, and so enthusiastic for the study of the civilized nations of the New World, has kindly undertaken to draw up the instructions for Peru; to him, also, we owe the instructions for Mexico, completed by the valuable indications of Abbé Brasseur de Bourbourg, the renovator and almost the creator of the primitive history of Mexico. I would particularly draw your attention to the *Notice-questionnaire* on the ethnology of France, in which your learned reporter M. Gustave Lagneau, faithful to his motto, *Facta, non verba*, has condensed within eighty pages the history and the description of all the peoples of various races which, from the pre-Celtic period to the present epoch, have occupied, colonized, or conquered the whole or part of the French soil. A rich bibliography—original, according to the habit of our colleague—gives to his treatise a character of precision and exactness which doubles its utility. The author has justly insisted upon the origin of those circumscribed and special populations which perpetuate themselves upon several spots of our territory, without becoming fused with the surrounding populations, and who preserve their habits, manners, and particular physical characters. This part of his work will render eminent service to provincial observers.

But you will have understood that ethnological instructions are not sufficient. It is not enough to impart to travellers the notions requisite for distinguishing the races of any country before describing them; they must further be enabled to collect their observations according to the requirements of science, and for this purpose they

must be furnished with the means for study, for a certain and easy mode of investigation, and with a general and uniform method applicable to all particular cases. Such is the object of the *General Instructions* which your commissioners have been charged to prepare. Those concerning the physical, anatomical, and physiological characters of the races of man are now ready. The commissioners purpose rendering the anthropological observations accessible to every man possessing the will, and to simplify as much as possible the instruments necessary for making observations.

I am not even able to enumerate the many communications we have received on the ethnology of foreign countries, and the reports and discussions to which they have given rise. The ethnology of Africa is represented in our publications, by the memoir of M. Pruner-bey on the Negroes; by two original communications from M. Berchon on Senegal; by a note of M. A. Duval, on the Gaboon; by the reports of M. Bertillon, on Southern Africa; by M. Dally, on Abyssinia; by M. Perier, on the Kabyles, and specially on the origin of the light-haired Kabyles, who inhabit a portion of the chain of the Atlas; and finally, by two long memoirs by Pruner-bey and Perier on the ancient races of Egypt.

If our two eminent colleagues do not agree in their conclusions, you must consider the difficulty of the subject and the insufficiency of the documents we possess on the primitive period of Egypt. The Champollions, the Lepsius, the Mariettes, and their glorious rivals, have conducted us from century to century, from dynasty to dynasty, to the period of the great pyramid, but these brilliant conquests of archæology, by thus passing beyond the limits of the historical period, have not yet succeeded to give us the key to Egyptian Ethnology. Which was the primitive race which had the honour of kindling in humanity the first torch of civilization? Did it come from the south, from the east, or from the west? Grave questions these, allied to problems the most contested in our science, which, nevertheless, M. Pruner-bey does not despair of solving. Twenty years study in Egypt, and continued in Paris in the Anthropological Gallery of the Museum, gave him the right to speak with authority, the more so as, combining the knowledge of craniology with philology, he possessed the most reliable guides in primitive ethnology.

Our colleague was first engaged in determining the physical characters of the ancient Egyptians. Blumenbach had already remarked the little uniformity of the type of their crania, and the study of monumental paintings enabled us to recognize, that from a remote antiquity

the population of Egypt must have been subject to numerous intermixtures with various peoples of Africa, Asia, and even Europe. M. Pruner-bey in studying this difficult subject has concentrated his attention to the most ancient paintings, and the mummies of the most remote period; and he has thus arrived to establish, that from the origin of the historical period, the Egyptian population presented already two eminently distinct types which he has designated *type fin* and *type grossier* (the fine and the gross type). These two types, of which pure specimens are found to this day among the Copts, as well as among the Fellahs, are derived from two different races which were already intermixed in the Valley of the Nile, before historical times, and which saw spring up the first of all civilizations. But what was the origin of these two races? and what was their respective share in the intellectual, material, and social progress? Without giving a definitive opinion as regards the race of the gross type, M. Pruner-bey is disposed to consider it as the first occupant of the soil. Civilization, according to him, was the work of the race of the fine type, which came from a foreign country, but this race was neither Aryan nor Semitic, as might be supposed. The crania of the fine type present to those of the Asiatic races insufficient analogies. Finding thus, as regards the Orient, nothing but uncertainty, the author turns to the Occident; he compares the fine type with that of the Lybian or Berber race, and this time the resemblance appears to him complete. Philology interrogated in its turn, replies in a similar sense. M. Pruner-bey compares, first, the ancient Egyptian language with the Indo-European, then with Syro-Arabian languages, and finds between these three groups of languages radical differences, whilst the strict parentage between the ancient Copt and the Berber languages, seems to him evident. From this double series of researches, he draws the conclusion that the fine-typed race, the mother of the civilization of Egypt, was of Berber origin, but he adds this civilization did not proceed from any other, and was born in the Valley of the Nile.

Such is the system which M. Pruner-bey has developed before us with as much science as talent. To throw doubts upon opinions so consequent and supported by proofs so winning, nothing less was required than the vast erudition of M. Perier. The study of Egypt is for our eminent colleague as an heir-loom. His father-in-law, the illustrious Larrey, was one of the Pleiades of *savants* who accompanied the expedition of General Bonaparte, and which for the first time revealed to Europe the old world of the East. Devoted for a

long time to the study of Egyptian antiquities, at the same time ethnologist, historian, and philosopher, M. Perier contests one of the conclusions of M. Pruner-bey. He admits with him, that the civilization of Egypt is autochthonic; but if he is to search for its origin beyond the Valley of the Nile, he would look for it in Asia, in mysterious India, and not in Lybia.

This dissidence between our competent colleagues, which already manifested itself in the short and interesting discussion which followed the reading of M. Pruner-bey's memoir, led us to expect a more exhaustive debate after M. Perier's reply; but this hope was not realized. A sudden attack of a long and cruel malady, prevented M. Perier from attending our meetings for a whole year, and to read himself his important memoir. He has intrusted with it our colleague Edward Michaux, who was obliged to leave us. This young *savant*, full of courage and hope, asked permission to take part as military physician in the expedition of Mexico. It was more the love of science, than the expectation of advancement which induced him to solicit this favour. Is not Mexico the Egypt of the New-World? Edward Michaux hoped assiduously to explore the sacred soil of America, this cradle of a civilization so long misunderstood, the remains of which, shrouded with briars, still astonish us by their grandeur and majesty. Attacked by that terrible scourge which has decimated our army, he died at Vera Cruz on the 8th of April, 1862, but a few days after his arrival. I cannot refrain from paying him in this place the just tribute of our regrets.

This leads me to speak of the important contributions of Mr. Gosse, senior, to American ethnology. Our venerable colleague has for a long time past fixed his attention on this subject, and his essay "on the artificial deformation of the cranium," published in 1855, whilst raising some general questions of high interest, has at the same time furnished valuable elements for the solution of some special questions. A large number of American peoples had formerly, and have even now, the habit of deforming the crania of their children, by methodical compression; and it seems that such practices, which substitute for the natural shape arbitrary and factitious forms, must deprive craniological determinations of any value and significance. This difficulty is so much greater, since certain infantile diseases may produce natural deformations which may thus be confounded with artificial deformations. An interesting collection of crania, arranged by M. Giraldès, in the Foundling Hospital, which he has enabled us to inspect, gives evidence of this cause of error; and the interesting

memoir of our eminent colleague, Dr. Barnard Davis, one of the authors of *Crania Britannica*, has shown us that pathological deformations of a peculiar type may be produced in adult, and even advanced age.

On the one hand, M. Gratiolet has drawn your attention to the circumstance that artificial deformations are, in their origin, frequently an exaggeration of the distinctive characters of the race which submit to it. Every people, whether savage or civilized, is prone to admire itself, to attach an idea of beauty or superiority to the features which distinguish them from other peoples; and it is for the purpose of giving their children a conventional beauty that mothers use mechanical appliances to compress the heads of their babies. A deformed cranium is thus like a caricature, in which the exaggeration of the most characteristic features does not destroy the resemblance, and in which an artist of experience may frequently detect the real type of the face. Thus, in comparing the non-deformed cranium of a modern Totonaque with the ancient deformed crania of the island Sacrificos, M. Gratiolet pointed out the natural character on the first skull, the artificial exaggeration of which has produced the strange form of the other crania. Hence, it is not impossible for the naturalist to detect the primitive type in a deformed cranium.

On the other hand, Mr. Gosse has, by the study of the numerous processes of deformation, that were and are still in use in America, been enabled to reduce them to five essentially distinct types, which he has described, and indicated the effects and repartition at the present time and in the past, and has shown us, by various examples, how much the study of this manifestation of human fancy may throw some light on the history of migrations. A process of cranial deformation once adopted becomes part and parcel of national manners; it is one of the most persistent habits which may survive the most distant migrations, and even the change of manners, language, religion, and social condition. Thus the various races, which composed the ancient population of Peru had each a peculiar process of deformation, and the knowledge of this fact has enabled M. Gosse, in his *Dissertation on the Races of Peru*, to rectify some of the ethnological opinions of Messrs. Rivero and Tschudi. But the most curious result of the reseaches of our colleague is relative to the history of the peoples which practise "*the relevated cuneiform deformation.*" This strange and so characteristic deformation is effected by two layers of argil—one of which compresses the forehead and the other the occiput. It was practised in Cuba, at the time of Columbus, among the Natchez and various peoples of Florida, as described in Morton's

Crania Americana, and finally in Peru, where it is still in practice among the Omaguas and the Connivos. Is it probable that peoples so distant from each other should, without knowing each other, have conceived the same idea, and the same mode of realizing it? Is it not rather more probable that a migrating people should have introduced in the different regions its national custom? But though migration from Florida to Cuba seems easy, it cannot be well understood how primitive navigators could have introduced the habit into Peru, without intermediate stations. We are then authorized to think that the people with the cuneiform crania must have traversed, in successive stages, Mexico, Central America, and the Isthmus of Panama. A bas-relief, found in the ruins of Palenqué, representing the profile of an Indian, with a cuneiform cranium, already gave support to this hypothesis; but M. Gosse gave you a more decisive proof, in an extremely deformed cranium, which came from a cavern in the valley of Ghovel, in the state of Chiapas. This cranium, covered with a thick layer of stalagmite, belongs to a very remote period, and yet it exactly resembles the cuneiform crania of Florida and Peru.

Here we have a fact, established by the study of the artificial deformation of the cranium. A great number of centuries ago a migrating people, travelling alternately by sea, or by land, traversed the immense space which separates Florida from Peru, in passing by way of Cuba and Southern Mexico.

Well, gentlemen, this craniological fact strikingly confirms traditions and the archæological documents, by the aid of which the Abbé de Bourbourg has constituted the primitive history of the new world. In his great work on Mexico and Central America, before Columbus, and in the important introduction which he has published to the *Popol Vuh*, or sacred book of the nations of Central America, the learned abbé has established, that before the Christian era the people of the Nahoas, who had come by sea, from Florida or the greater Antilles, had debarked in Mexico, not far from the spot where now Tampico stands. Descending thence towards the south, along the gulf, the Nahoas halted on the borders of the Lagune de Terminos, a small distance from the ancient empire of Xibalba, which they took possession of. The town Ghovel, which they founded at that period, is but three leagues distance from the cavern whence came the cuneiform cranium, which M. Gosse has presented to you.

After a period of prosperity, the duration of which is not yet

determined, the conquering Nahoas, driven out (174 of our era), by a national revolution, found themselves compelled to search for other dwelling-places, and one of their bands traversing the Isthmus of Panama, established itself in Peru. Thus the same people, the people of the Nahoas, has, by its successive migrations, occupied all the regions where the cuneiform deformation of the cranium was practised; and here, gentlemen, you have two valuable facts—anthropology enlightened by history, and history confirmed by anthropology.

Whilst you have paid particular attention to the civilized races of America, you have not neglected the rest. The report of M. Simonet, on the Magellanic countries; the communications of M. Martin de Moussy on the peoples of La Plata; the notes of Mr. Rameau, and of our correspondent at Quebec, Mr. Landry, on the population of Canada; and, finally, the important report of M. Dally, on the indigenous races and archæology of the United States, prove the interest you take in American ethnology. The numerous questions raised or solved in this last paper have given rise to an animated discussion, in which Messrs. Pruner-bey and Rameau have taken part, and in which the unity of the American races has been refuted by several speakers.

The peoples of Oceania have occupied a large place in your labours. You have chiefly considered them in an anthropological point of view, to which I shall presently recur; here I shall only speak of ethnological facts. The memoir of M. Berchon, on tattooing in the Marquesa Islands, has initiated you in the secrets of this practice, so prevalent in Polynesia. M. Rufz has read a very detailed report on the ethnology of Polynesia, and our two colleagues of the navy, Messrs. Bourgarel and de Rochas, have enriched your museum with crania which they brought from New-Caledonia, the New-Hebrides, and from Taiti; and have made communications full of interest, respecting the manners, physical characters, and the origin of the Neo-Caledonians. This people, which some fine day, without knowing it, found themselves French subjects, and whom our rifled guns have not yet convinced of the excellence of our rights, belong to the race of oceanic negroes, but who for a century at least have intermixed with the Polynesians. It is by the Loyalty Islands, near New Caledonia, that this intermixture has been effected. The Polynesians of Wallis Island debarked five generations ago in the Loyalty Islands, where they fixed themselves, and intermixed with the natives; and from this intermixture between a Polynesian and a Melanesian race resulted

a hybrid population, which having from the Polynesians derived a taste for maritime expeditions, sent in their turn swarms to New Caledonia. The eastern coast of this island, where the new comers again intermixed with the natives, is therefore inhabited by very diversified tribes, some nearly of a pure black, others less homogeneous, who exhibit all the intermediate tints between black and yellow. It seems, however, that the Melanesian race has conserved its purity in the western region, which is as yet but little known, and which, protected on the sea-side by coral reefs, is separated from the rest of the island by a chain of mountains.

The migrations of the Polynesians and their crossbreds in New Caledonia are of sufficiently recent a date that their remembrance is not entirely effaced; but as they rested only on vague and contradictory traditions among an uncivilized people, their history required an ethnological confirmation, which M. Bourgarel has fortunately given us. Our zealous correspondent has brought us from Eastern New Caledonia fifty-seven crania, which he has divided into three series; the two extreme series represent the types of the black aboriginal race, and of the foreign yellow race; the middle series is composed of the crania of intermediate shape, belonging to the crossbreds of the two races.

To render this investigation complete M. Bourgarel has, for comparison, added a fourth series, composed of twenty-five crania, collected in Polynesia; and taking for each series the mean of all craniometrical elements, he has shown that the yellow race of New Caledonia presents intermediary characters between those of the Polynesian and Melanesian races. Craniology, therefore, induces us to believe that this yellow race, come from the Loyalty Islands, was a hybrid race, and the correctness of the traditions collected by our missionaries is thus confirmed.

You have received but few documents relative to the ethnology of Asiatic nations; you have, however, heard a report by M. Pihan Dufeillay on the inhabitants of the Andaman Islands; a notice by M. Fuzier, on the crania which he brought from China; a lecture by M. Armand, on transgangetic India; and a communication from M. Pruner-bey, on the Druses. Finally, M. Cordier, in presenting us with a Turkish cranium of the seventeenth century, established an anatomical and artistic parallel between the Turkish, Greek, and Arab head. This eminent artist had already presented you with the three remarkable busts which adorn our room; and he has taken this opportunity of expressing his ideas on the reproduction of ethnic

types by statuary. Our colleague, you are aware, has opened to art a new field, by demonstrating that beauty is not peculiar to such or such a type; that each race has its beauty, which differs from that of other races, the ideal type of which must reflect in a harmonious equilibrium the intellectual and moral characters, not less than the distinctive features of that race. The laws of beauty are thus not universal, no more than the canon of the proportions of the human body; they should be studied, and specially determined for each race; and it is by this means that M. Cordier, causing the rays of science to penetrate art, has on his return from his travels been able to create that beautiful ethnological gallery which excites the admiration both of artists and savants.

It is with regret that I must pass over several other communications, viz.—on art considered in its relations to ethnology; the remarks of M. Gratiolet on the cephalic types of Grecian statues; those of M. Boudin on the conformation of the base of the thorax in the ancient Greeks; the report of M. Cordier on the system of proportion; of M. Lihartzik, and the notice of M. Duchenne (of Boulogne) on the Egyptian canon rediscovered by M. Charles Blanc.

I hasten to come to that part of your labours which concerns the ethnology of Europe, and especially that of France.

It is the duty of our society to give a vigorous impulse to such researches as may throw the light of science on our national origin. You have not neglected that duty; you began your labours with it, and you have embraced every opportunity to discuss this question. Convinced that craniology is one of the surest guides in investigations of this kind, you have in your museum arranged a large collection of crania of every epoch. Nearly five hundred ancient and modern crania, of authenticated origin and of approximatively ascertained dates, taken partly from the ancient cemeteries of Paris and partly from the Merovingian or Gallo-Roman sepultures, enable each of you to study the primitive type, and to follow from age to age the effects of the admixture of races. This already rich collection grows from day to day, and I need not remind you that his Majesty the Emperor, in sending you a cranium found beneath a Roman wall, in the excavation of the camp Saint-Pierre, near Compiègne, has directed M. Viollet-le-duc, the director of the excavations, to send you, in his name, all the crania and skeletons which may yet be found there. M. de Roucy, the learned archæologist of Compiègne, who has been charged by the Emperor to conduct the excavations of Mont Berny, has discovered near the ruins of a Gallo-Roman town,

in the country of the ancient Suessones, a burial ground, from which fifty-four skeletons have been exhumed. Seventeen crania have already been received, the rest will follow. I must here not omit commending the intelligent zeal of our colleague, M. Bourgeois, of Pierrefonds, who living in the vicinity of these excavations, has drawn out a plan of the cemetery, indicated the direction and depth of each tomb, measured one by one all the bones of the skeletons, and has delineated the strange attitudes of these bodies, which seem to have been interred precipitately, after some battle between the Gallo-Romans and the barbarians of the fifth century.

In these diverse series of crania, as well in that which our colleague M. Brullé, of Dijon, has extracted from the sepultures of the time of the Burgundians, and which he has presented to us, you have constantly, among the intermediate forms, found two essentially distinct types, the one brachycephalous (head round or short), and the other dolichocephalous (head long), both represented by specimens the more numerous the more we distance the actual period. This is a certain indication of the intermixture which has taken place on our soil before and during the historical period between the groups of races, the one brachycephalous, the others dolichocephalous. Now, all the foreign peoples of the Indo-European stock who have one after another invaded, conquered, or occupied the whole or a part of our country, the Celts, the Kymris, the Germans, were dolichocephali, and so were the Romans, though in a less degree. It is, therefore, not doubtful that the brachycephalous type, still so prevalent among us, is derived from populations anterior to the arrival of the Celts, and, moreover, a considerable number of facts which have been on various occasions expounded by Messrs. Darest, Pruner-bey, Lagneau, Rameau, and other members, have directly demonstrated that, in the period of the stone-age, Denmark, the British Isles, France, Switzerland, and no doubt other countries of Europe, were inhabited by brachycephalous races.

These primitive peoples, the names of which seem irrecoverably lost, were long before the historical period overrun by successive waves of dolichocephalous races from Asia, and then commenced between these two groups of populations an immense struggle, which spread from the Vistula to the Atlantic, from the Baltic to the Mediterranean, and which, no doubt, continued for many centuries; an unequal struggle, in which the stone hatchet proved useless against the bronze weapon, and in which the superiority of arms conquered the superiority in numbers. In vain did the autochthons take refuge in their lacustral

habitations, where their conquerors, by the law of retaliation took, at a later period, refuge in their turn.

The tranquil waters of these lakes, which protected the habitations from beasts, could not protect them against the attacks of man, and the fire kindled by the torch of the enemy easily destroyed their wooden houses, the carbonized remains of which, found in the basin of the lakes, intermixed with piles, arrows, flint-hatchets, and knives, bring before our minds the terrible drama of these conquests. M. Gosse, junior, has, in a highly interesting memoir, told you that nearly all lacustrine habitations have been destroyed by fire, both those of the stone period and of the bronze period.

Everywhere vanquished, sometimes destroyed, more frequently subjugated, the aboriginals still preserved in the regions of the south and east their numerical preponderance, and, intermixing with their conquerors, they engendered hybrid races, which in proportion of the intermixture received in an unequal degree the respective impress of their parent stocks. But whilst they preserved, at the cost of greater or lesser alterations, some of the physical characters, they lost their nationalities, their manners, their language, and even their names. Nevertheless, in some localities better defended by Nature, in certain valleys difficult of access, which perhaps the conquerors did not covet, the *débris* of primitive populations escaped the common lot. Such, no doubt, were the ancestors of those Roman Rhaetians, which our eminent colleague M. de Baer has studied in the environs of Coire. M. Dareste, in his report on the memoir of the learned Professor of Saint Petersburg, has told you how M. de Baer was led to conclude that the inhabitants of the ancient Rhaetian Alps were of the brachycephalous race. Not sufficiently numerous to constitute a nation, they have only preserved their type, and their language in a Latin idiom. But in the chain of the Pyrenees and their slopes, an intelligent and heroic people preserved both their nationality and customs as well as their language. M. Pruner-bey said:—The Basque is the most ancient of all known languages; alone has it survived the wreck of the primitive idioms of Europe; alone does it stand as a living proof of the existence of aboriginal races before the Asiatic invasion, and if, gentlemen, you compare with this irrefutable linguistic proof the anatomical facts which, directly or indirectly demonstrate, that at least some of these were brachycephalous races, you will understand how the illustrious Retzius and all ethnologists after him have been led to conclude that the Basques must be also brachycephalous. Two crania examined by the great Swedish anatomist confirmed this doctrine, and the observations made by M. A. d'Abbadie on the living

gave a fresh support to this theory. Still, a fact of such importance, the keystone as it were of the primitive ethnology of Europe, required a more complete and direct demonstration. For the last four years, foreign ethnologists have frequently applied to you, vainly expecting to find in your museum some specimens of the crania of the Basque race; but excepting the two crania in Stockholm, this race had no representative either in our or any other collection. This gap no longer exists. Two of our members have, with their own hands, exhumed from a cemetery in the province of Guipuscoa sixty Basque crania which have been for some months deposited in your museum. You were thus enabled to control by anatomical examination the rational opinion of Retzius. But why has the verification not been conform to our expectation? Of the sixty Basque skulls in your collection, two or three only are really brachycephalous; most of them are altogether dolichocephalous; and, what was quite unexpected, the mean type of the series is much more dolichocephalous than that of the French in the north.

Are we, then, obliged to reject the whole doctrine of the primitive ethnology of Europe? Is this doctrine sapped at its base? Not so, gentlemen, it is not even shaken. The facts upon which it reposes are sufficiently numerous and decisive, to be considered as settled. Yes, the pre-Celtic populations of Denmark, the British Isles, France, and Switzerland, were mostly brachycephalous. Nothing can destroy this clearly demonstrated fact. But does it follow that before the arrival of the Celts there were none but brachycephali in Europe? Remote as we are from this mysterious period, we are like benighted travellers who, at a distance, confound all the trees of the forest in a single mass. It is rather much for our mind, which only gropes its way, to assume that an unique aboriginal race has upon our soil preceded the races which have made themselves a name in history. But when at present we find the earth covered with a number of peoples, as diversified by type as by language, when we see the most distinct races living side by side, with or without intermixture, upon what grounds do we pretend to assert that the population of Europe must have been uniform four or five thousand years ago? Was humanity then so very young? And migrations and the struggle between races, had they not had sufficient time to spread in different parts of the globe different types? But why make suppositions after the facts have spoken? The diversity of the primitive peoples of Europe is established by human palæontology. To the series of observations which prove the pre-historic existence of brachycephali, we must join a

series of observations, less numerous it is true, but not less decisive, which demonstrate the co-existence, perhaps the anteriority of the dolichocephalous type. The cranium which M. Garrigou has extracted from a cavern in the Pyrenees and which you have seen in its bed of stalagmite is dolichocephalous; the cranium of Meilen, which comes from a lacustral habitation of the stone period, and of which M. Vogt, of Geneva, has sent you a sketch, is equally dolichocephalous. The celebrated skull of the cavern of Engis which M. Schmerling has found among the remains of the elephant, rhinoceros, and other extinct animals, presents the same form. And the still more celebrated skull of the Neander-valley, of which Professor Schaaffhausen of Bonn has recently sent you a description, and of which you will soon receive a cast to be presented by M. Pruner-bey—this cranium with a form so strange that many *savants* have considered it the oldest cranium known, is it not remarkable by its narrowness and length? In the presence of these facts, gentlemen, it is impossible to disown, that one or several dolichocephalous races must have existed in Europe at an immensely remote period; and even if all the actual Basques were as dolichocephalous as those in your collection, which is as yet problematical, the ethnological theory advanced by Retzius and defended by Pruner-bey with so much authority, is not overthrown by one more exception.

On approaching our own the historical period, you have by your labours and discussions thrown light upon many questions relative to the ethnological origin of our own nation. The memoir of M. Lagneau *On the Gaels and Celts*, in which sound criticism is joined with profound erudition, has proved to you that these two peoples, confounded into one by William Edwards, were, if not different in race, at least in nationality. Our indefatigable colleague M. Halléguen, of Châteaulin, has, in his two memoirs *On the Ethnology of Brittany*, protested against the too exclusive theories and complaisant legends which attribute to the immigrations of the insular Britons an exaggerated ethnological and political influence.

The determination of the physical character of the Gaelic race has been the object of your special attention. Like William Edwards, the great teacher of French ethnology, you have in the actual populations searched for the distinctive features which still stamp their origin. The influence of the ethnological stock upon the variations of stature has been rendered evident by statistics based upon the conscription for the army. The valuable documents of M. Boudin in his *Medical Geography*, have placed at your disposal this new element of

anthropological study. Maps differently shaded represent the repartition of exemptions, or short stature, in the different departments, and have thus, so to say, placed before your eyes the ethnological Gaul of *Cæsar's Commentaries*. M. Sistach, confining himself to a more recent period, has prepared a new map so similar to the preceding, that you were struck with the resemblance. More recently still, M. Boudin placing the examination of this question upon a different basis, has contrived a fresh map, showing the repartition of high stature and the differences which he has remarked between these fresh results and those relating to short stature. This has given rise to a learned dissertation by M. Bertillon, on the law of great numbers and on the significance and interpretation of statistical documents.

Recruiting has not merely revealed the ethnological influences upon stature. Several maps prepared by M. Boudin have shewn us that the distribution of myopia, rupture, bad teeth, depend greatly upon race. In this respect, as well as in regard to stature, there exists the most striking contrast between the populations of Brittany and Normandy; and M. Bertillon has shewn us, by valuable statistics, that these two populations, so different in origin, occupy the two extremes in the scale of mortality in France.

We possess as yet no numerical report on the dominant colour of the eyes and hair in the various departments of France. All that we know in this respect rests only upon individual impressions. The precise account of our colleague Dr. John Beddoe of Clifton, on the population of Ireland, partly fills the gap; for the ethnological elements which he has examined much resemble those of several of our departments.

Before leaving the field of ethnology, I cannot omit to cast a rapid glance on your linguistic labours. You have by them thrown light upon some special questions; and I must, above all, render justice to the profound knowledge of our colleague M. Pruner-bey. Is there one point of philology which he is not ready to tackle? Is there a family of languages of which he has not fathomed the structure and studied the development and filiation? You have just heard him on the Egyptian origin, passing in review all the languages of Africa and Western Asia; the languages of America, and even those of Australia, had their turn. He it was who made us acquainted with the repartition of the principal primitive systems of numeration; and you would have felt surprised if he had let pass without comment the eloquent and learned communication of M. Chavée *On the Parallelism of the Indo-European and Semitic Languages*. With that lucidity

and conviction which give so much value to his opinion, M. Chavée directed your attention to the essential, radical, and absolute difference which separates these two families of languages; and, despairing to approach them by any filiation, he boldly infers the original diversity which has given rise to them. In his exposition there were two different things: a fact and a conclusion. The fact has been questioned by M. Halléguen, who has pointed out some points of resemblance between the Semitic grammar and that of the Indo-European languages; but it has been accepted without reticence by M. Pruner-bey and M. Rénan, the eminent historian of the Semitic languages. Both have declared that it was as impossible to derive the Sanskrit from the Hebrew as the Hebrew from the Sanskrit. Still they do not admit that the conclusion of M. Chavée is demonstrated. M. Rénan considers the conclusion as possible, even probable; but he adds that all that has passed before the origin of civilization, before the constitution of society, before the organization of languages, is unknown and inaccessible to linguists; and M. Pruner-bey, in assuming the possibility of another hypothesis, remarked that though the Aryan, Semitic, and Turanian languages exhibit no direct relationship, they might possibly have come from the same stock—from a linguistic family lost to us for ever. You have followed with interest the phases of the great discussion on M. Chavée's new *mémoire*, *On the Morphology of Chinese Syllables*. Here, also, upon a more difficult field, have the same doctrines been discussed with the same talent.

II. GENERAL ANTHROPOLOGY. Time presses, gentlemen; it passes too slow for you, who favour me with your attention, too rapidly for me, who would wish to follow you in all your researches and discussions: but want of space compels me to make an almost arbitrary selection among the numerous materials with which you have enriched the science.

If your ethnological labours have been fruitful, it is because you have known how to apply particular facts to general questions; because, beyond the consideration of types and races, you always evinced the desire to trace the laws of the human organism, the causes of the complex phenomena which manifest themselves under the influence of heredity, education, external media, the conditions which preside over the development of man's social existence, his industry, and his intellectual progress. These subjects of research, as important for the naturalist as the philosopher, the physician, and the physiologist, belong to general anthropology; and I should wish to resume properly what this science owes to you.

Here, in point of fact, all questions were new ; the facts themselves were to be collected ; they had never been publicly discussed ; they were to be analysed, interpreted, grouped ; a building was to be constructed, and what a building !—the Palace of Mankind.

I shall not tell you that you have completed a work which will require the coöperation of generations. But you have at least laid down a solid foundation ; upon several spots the walls rise already ; and I venture to tell you that in four years you have effected more than you expected yourselves.

The position of man in nature is not yet clearly determined. In a purely zoological point of view, or, if you like, from an anatomical standpoint, he differs less from four superior apes than they differ from other apes. He forms with them a natural group—the anthropomorphous group—of which he is only the first subdivision ; and our learned colleague, Professor Charles Martens of Montpellier, has made us acquainted with two osteological characters exclusively belonging to this group. But, though by the structure and disposition of his organs man differs but little from the superior apes, he differs from them eminently by his mind and by his language ; and, according to the different standpoints which one takes, it may be asked whether man forms in nature a kingdom, a class, an order, or only a genus of the order of primates ? You have not discussed this subject in its *ensemble*, but M. Gratiolet has spoken before you of the more important part of this subject. Man is *man* by his intelligence ; he is intelligent by his brain ; and it is by his brain that he ought to differ from the apes. Yet it is with difficulty that anatomy finds some slight differences between the encephalon of the chimpanzee and the lord of the earth, as pointed out by M. Auburtin. The pretended characters invoked by Mr. Richard Owen have been found incorrect. The superior apes have, like ourselves, a posterior lobe, a posterior cornu, and a hippocampus minor ; and there is nothing, unless it be the great difference in mass and the unequal richness of secondary convolutions, which establishes in adults a radical and absolute distinction between the brain of man and that of the superior apes. But embryology and pathological anatomy have furnished M. Gratiolet with a decisive mark of distinction. The order in which the convolutions develop themselves is absolutely different in the two groups. Those which in man appear first, are in the ape formed last, and *vice versâ*. What is the result ? When from any cause whatever there is in a child an arrest of development of the brain, that organ, so far from approaching the conformation of the brain of apes, differs from it more and more.

This arrest of development, which constitutes microcephaly, always produces a more or less complete idiocy. The brain of microcephali is poor in convolutions, and these not being closely pressed against each other, leave isolated their impress upon the internal surface of the bones of the cranium. The discovery of this fact has induced M. Gratiolet to search if in the inferior races, whose convolutions are less developed, the cranial parietes did not present analogous impressions; and he has shewn you the existence of this character in a Totonaque skull, which since then you have also found to exist in some negro skulls.

This communication, in which our colleague in his happy style has treated of the highest questions of cerebral physiology, has enabled you to discuss the relations of the volume and the shape of the brain to the intelligence of individuals and races. Does the brain perform its functions as a simple organ, or is it composed of several organs subservient to isolated manifestations of various faculties? Is there any relation between the development of this organ and its functional activity? Is there a limit as to weight, below which there is no intelligence manifested? Finally, is the capacity or inferiority of individuals and races wholly or partly dependent on the conformation and volume of the encephalon? Such is the vast field you have passed through. You have heard successively Messrs. Auburtin, Perier, de Jouvencel, Giraldés, de Castelnau, Baillarger, Delasiauve, and above all Gratiolet; and this debate, continued through several sittings, has given rise to a memoir by M. Dareste, in which he has brought to light a number of new and important facts.

The memoir of M. Boudin, on *the non-cosmopolitism of the races of mankind*, has enabled you to examine the question of acclimatization, so important for the colonizing and commercial nations of Europe. Is man cosmopolite? Can he live and preserve his race in every climate? The author of the *Medical Geography* was well fit to try the solution of this problem. He has shown you by history and statistics that excepting a few races, and particularly the yellow race, acclimatization is circumscribed for each race, and subordinate to certain conditions of climate and other media. If many colonies seem to prosper, in spite of these conditions, it is because they are continually reinforced by the mother country. But the rate of mortality exceeding the births proves that the transplanted race does not maintain itself, and that it would become extinct sooner or later, if it were isolated. Our learned colleague insists specially on the obstacles opposing the acclimatization of Europeans in the tropics, in the diseases they con-

tract, from which the natives are more or less exempt; but he adds that the southern hemisphere is much less inhospitable than the northern, and he particularly points out several stations in Oceania remarkable for their salubrity.

These ideas, which so little conform to those generally received, were not allowed to pass without discussion. MM. Brown-Séquard, Baillarger, Verneuil, Bertillon, Martin de Moussey, Simonot, have successively spoken on the subject. M. Berchon has cited facts to the contrary; but notwithstanding some correction of secondary details, it seemed to result from numerous documents submitted to you, that the European races cannot, without continued reinforcements from the mother country, maintain themselves in tropical Africa and Asia.

The study of the diseases which carry off such a number of individuals transplanted to foreign climates, and which do not attack the natives, has enabled M. Boudin to point out the aptitudes and pathological immunities of a certain number of races. As every race has its organic and physiological type, so it has its pathological type revealed by its dominant diseases—by its resistance to certain morbid causes, whilst on the other hand it is prone to contract diseases which do not affect the other races. Thus the “tonga”, this curious ulcer which spares scarcely any native of New Caledonia, and which, like the small pox, rarely attacks the same individual twice, is seemingly not developed among the whites who inhabit that island. Negroes, so much subject to phthisis, even in their own country, are much less exposed than the whites to hepatitis, dysentery, and intermittent fevers. Diseases of the heart and arteries, so common among the English in India, as well as among the English at home, are exceedingly rare among the Hindoos; and cancer, which commits such ravages amongst us, is nearly unknown in New Zealand, South Africa, and among the Indians in Canada. The communications of M. Berchon on Sénégal; of M. Rochas, on New Caledonia; of M. Martin de Moussy on South America; of Mr. Hayward on New England; of Mr. Sandry on Canada; the numerous facts contained in the report of M. Bertillon on South Africa; of M. Ruzf on Tahiti; of M. Dally on Abyssinia; the documents collected by M. Boudin on the aissano, or snake charmers; the notice of M. Rameau on the dominant diseases in the United States; and a number of other notices scattered in our bulletins, constitute already a mass of materials, by means of which we may soon constitute a *comparative pathology of the races of mankind*.

Two questions, apparently opposed, and yet connected, that con-

cerning the intermixture of races, and that relating to consanguinity of marriages, have been mooted before you by Messrs. Boudin and Perier. The union of two relations and that of two individuals belonging to different races are like the two extremes of the same series. Is consanguinity a cause of disease and degeneration? Is intermixture a means of improving the races? M. Perier answers these questions in the negative. Consanguinity is only injurious by hereditary disease; but when the two related parents belong to a family exempt from hereditary vice the fact of their relationship cannot injuriously affect their progeny. M. Bourgeois, M. Dally, M. Sanson sustained the same opinion; and the latter has related to you a number of facts borrowed from zootechnics, challenged by M. Boudin. Referring to statistics, the basis of which had been discussed by M. Dally, M. Boudin produced the figures which at any rate seemed to establish the influence of consanguine marriages in the production of deaf-mutism, and our colleague of Nogent-le-Rotrou, M. Brochard, has transmitted to you reports testifying to the same fact.

The second question in regard to ethnic crossings has been investigated by M. Perier, in a long treatise which has appeared in our *Mémoires*. Without asserting, as some modern authors have done, that all crossings of races are followed by a physical and intellectual degeneracy, and whilst admitting that races of the same type, of the same stock, may intermix without injury, our colleague thinks that crossings between remote races can only have injurious results, and is of opinion, *ceteris paribus*, that pure races are superior to the mixed races. M. Boudin joins M. Perier to proclaim the physical, intellectual, and moral inferiority of certain mongrels. M. de Quatrefages, however, without doubting these facts, maintains that in many cases intermixture tempers the races, improves their instincts, develops their aptitudes, and sometimes engenders capacities not possessed by the primary races.

Thus arose a discussion, which after occupying several of our sittings, gradually approached the most arduous questions of anthropology. The questions of the permanence of types, of the heredity of natural characters, of accidental characters, of atavism, which causes, after several generations, the types altered by crossing to re-appear; all these have in their turn been explored and solved according to the various standpoints of the speakers.

All agree that certain types have maintained themselves unchanged since the Pharaonic epoch; that some of them have even survived

multiplied crossings, and a total subversion of political and social conditions; but the dissidences only manifested themselves when the question arose whether the permanence of types was a general law, and whether certain races might not, under the influence of a change of external conditions, undergo more or less trenchant modifications. The question was asked whether the European race implanted for some centuries on the continent of America have in the new climate preserved their primitive character. The observations of M. Rameau on the Anglo-Americans have revealed some curious particulars; but his remarks in regard to domestic animals and plants, and also to man, are merely relative to vital activity and functional power, but not to typical characters. The particulars furnished by M. Quatrefages would acquire more weight if they are confirmed; for they tend to establish that in some spots of North America the European and African races have something in their physiognomy which approaches them to the red-skins. But M. Martin de Moussy has opposed to these yet doubtful instances that of the Europeans of Paraguay, whom he has carefully observed, and who since the sixteenth century have maintained their type, without any alteration. He refers particularly to the history of a German colony, founded in 1535, by the soldiers of Charles the Fifth, who since that time have received no addition of a German element. These Germans of Paraguay are to this day perfectly like the Germans of Europe.

It is not only to the influence of climate that the power of modifying the human types is attributed. It was asked whether certain artificial forms of the head might not during a series of generations become hereditary and produce permanent characters surviving the practice of deformation. This interpretation, admitted by M. Gosse, senior, as regards certain races of Peru, is doubted by M. Gratiolet, who has quite differently explained the facts invoked, and also by M. Perier, who has read before you his memoir on the *Heredity of Anomalies*.

A report by M. Trélat, on the extinction of the native races of Oceania and Guyana, induced you to trace the causes of such a deplorable result, which manifests itself wherever Europeans come in contact with uncivilized peoples, even when no violence is done to them. The diseases imported by the whites, the vices which they introduced by example, are only partial causes; it is not by increase of mortality, but by the diminution of births, by the diminishing fecundity of the females, that half savage populations perish when suddenly brought into contact with a civilized race. There was but one step

from this grave question to that of the perfectibility of the inferior races. Messrs. Quatrefages, Ruz, Delasiauve, and Pruner-bey, think that every race is perfectible, even that the Australians are not refractory to civilization; whilst Messrs. Perier, O'Rorke, and George Pouchet, despair of the future of these peoples.

I should here leave a serious gap if I were to omit mentioning the application of the facts furnished by zootechnics, namely, the examples of the races of domestic animals to the study of general anthropology. Messrs. de Quatrefages, Geoffroy Saint-Hilaire, Perier, Auburton, Trelat, Lagneau, and especially M. Sanson, have in the discussions relative to the intermixture of races, consanguinity, heredity, perfectibility, the permanence of types, brought to bear the facts borrowed from zootechnics, and M. Davelouis has, in a special *mémoire*, expounded the ideas of his teacher M. Geoffroy Saint-Hilaire, on the relations of the latter science to anthropology.

In all these discussions on general anthropology you have listened to two series of arguments, inherent to two doctrines, which everywhere cause dissension, but are here, thanks to your exclusively scientific spirit, calmly discussed. For you, the monogenistic and polygenistic doctrines are no weapons of war; you do not bring to bear upon them political or religious prejudices; they do not divide you into two hostile sects, and the moderation, urbanity, and good faith which reign in your debates, prove that your opinions on this or any other point are only based on science. Without seeking for the occasion to express your opinions you have never dissimulated them. Last year, a report of M. Simonot induced you to investigate the causes of the colour of the skin of the Negro. This was the prelude of a discussion, which took place after a lecture of M. Pruner-bey, and which embraced all the questions relative to the influence of external conditions on the physical characters of the races of mankind. Messrs. Quatrefages and Pruner-bey on one side, and Messrs. d'Omalius d'Halloy, Trelat, Bertillon, Dally, and Sanson on the other, have treated these questions from opposite stand-points. No conclusion was arrived at, nor was it intended. Whilst each of us expresses his opinion freely, the society will never be called upon to express one; it is neither monogenist nor polygenist; it is a scientific association where everyone who likes to search for the truth may take his place without being asked to render an account of his opinions.

Moreover, gentlemen, this debate on the origin of races which some twenty years ago was called "The Great Controversy," is now produced under conditions, which renders it tributary to a greater ques-

tion which may not admit of a decisive solution for a long time to come. When it was believed that humanity was quite recent and scarcely six thousand years old; when in the valley of the Nile upon monuments forty centuries old, there were found represented ethnic types as distinct then as they are now, Jews, Greeks, Egyptians, Hindoos, and Negroes, entirely like their present representatives, it might have been expected that the day would arrive when the question of the multiplicity of primitive types would be solved. But at this moment, the date of the first appearance of man seems indefinitely remote; the periods are no longer counted by hundreds or thousands, but by myriads of years, and we know that our five thousand years of history are but a short episode in the life of humanity. The types which we are enabled to study, appear to us permanent. Can we say that they are so? The four thousand years which have elapsed since the ethnic types have been depicted on the Egyptian monuments, may have produced in the corresponding races changes too slight to strike our attention, equivalent, for instance, to the tenth part of such which constitute for us race characters. But multiply this lapse of time by ten, and there will appear before us, I do not say demonstrated or demonstrable, but simply as possible, a conciliation of the monogenistic theory with most of the facts upon which the opposite theory rests.

This question of the antiquity of man which heads all the rest, could not escape your attention. It was not here that the question was engendered, but you were the first who examined, fathomed, and completed it; and I venture to say, that your discussions, reproduced in a great number of scientific and even political journals, have powerfully contributed to the triumph of truth. It is not lightly, gentlemen, that you have accepted the discoveries and the demonstration of Boucher de Perthes. When M. Geoffroy Saint-Hilaire, in the sitting which preceded the first communication of M. George Pouchet, placed before you some hatchets and knives from the diluvium of Abbeville, objections were raised as to the validity of these proofs. Some of you doubted the origin of the flints, the abrupt surfaces and contours of which might have been produced by accidental causes. But when M. Boucher de Perthes sent other hatchets, when M. Gosse found exactly similar ones in the diluvium of Paris, together with knives and arrow-heads, the constant repetition of the same forms brought conviction to your minds.

The discussion which followed on primitive industry and its successive periods, on the transition from the roughly-worked to the polished flints, on the transition periods from the stone to the copper or bronze

age, and from this to the iron period; this discussion, in which Messrs. Geoffroy Saint-Hilaire, de Castlenau, Gosse junior, Lagneau, Baillarger, and Verneuil, took part, and which implements M. Trelat compared with the actual industry of savage peoples; this discussion, I venture to say, may be cited as one of the most important and interesting contained in your *Bulletins*.

M. Gosse has exhibited before you, in the same gravel-pit, still moist, a fossil rib of the aurochs, and a flint arrow head; he has further shown you a carbonized bone which he has extracted from the diluvium in the gravel-pits of Grenelle. M. Geoffroy Saint-Hilaire has communicated to you the curious discovery of M. Lartet, who found upon the fossil bones of the *rhinoceros tichorinus* and the *cervus megaceros*, deposited in the gallery of the museum, the impress of the stone-hatchets with which man used to cut up the animals before consuming them. I must condense, gentlemen, for the facts are here already too numerous to bear citing, but I must, nevertheless, remind you of M. Delanoue's interesting communication on the researches made in the valley of the Somme, and of the geological proofs regarding the antiquity of the diluvium, which, in addition to the hatchets, contains the remains of the rhinoceros and the elephant.

An intelligent being, capable of working the flints, of kindling fire, of killing and cutting up large animals, has then existed upon our soil simultaneously with the mammoth, the rhinoceros, the gigantic deer, and the cavern-bear,—animals the species of which have been extinct for an incalculable period of centuries.

The antiquity of man is thus reduced to the commencement of the quaternary period. It might ascend to the tertiary period, if it were true, as M. de Jouvencel supposed, that the sand pipes (*puits naturels*) were the work of man. But M. Bert has opposed this hypothesis by objections on the value of which I can pronounce no opinion. Moreover, the moment has not yet arrived to fix the time of man's advent upon the earth. Positive facts, irrefutable evidence, show that man existed at the time of the diluvium; this is the first date of his history, or rather the first known date, but it is not impossible that we may find traces of his earlier existence.

In order to form some idea of the immense period of time which must have elapsed since the diluvial hatchets were worked, I must recall to your minds the details given by M. Delanoue on the geological constitution of the bed of the Somme. There are, in the environs of Amiens, beneath the recent and the loess formation, the thickness of which amounts frequently to ten meters, two strata

of diluvium, the one red and superficial, characterized by its irregular and but little rolled flints; the second, deep, of grey colour, the round flints of which have been strongly rolled. These two strata, each several meters in thickness, are separated by a layer of lacustral deposits, containing fresh-water shells, and which has sometimes a thickness of five meters. Now it is exactly in the grey or *inferior* diluvium, immediately beneath the tertiary formations, that the remains of human industry have been found associated with the fossil bones of the mammoth and rhinoceros. Thus, after the first diluvial epoch, which gives us the first date of humanity, there was a longer period of repose during which fresh-water lakes were formed above the inferior diluvium; a second geological change then induced the formation of the superior diluvium; at a later period, the conditions changed again, and a thick layer of loess re-covered the flints of the second diluvial period; and finally, a new order of things took place, during which, the recent terrains were formed above the loess. It follows thus, that since the hand of man fashioned the flints of the valley of the Somme, the geological conditions have changed not less than four times, and the duration of these successive periods is truly incalculable. It is remarkable that, whilst the remains of human industry are so over abundant in the inferior diluvium, there is no trace of them in the layers which separate this diluvium from the vegetable soil; man excluded from these parts by the accumulation of lacustral waters, could only reappear there at a relatively very recent period, after the extinction of the large animals, which he formerly combated, after the fusion of the glaciers to which M. Delanoue is inclined to ascribe the loess formation. During this long glacial period, of which Mr. Ch. Martens has given you so clear and learned a description, a large portion of Europe became gradually covered with ice, and many species unable to defend themselves against the cold perished, whilst man, by his industry and intelligence, contrived to escape this wholesale destruction. By striking flint against flint, to fashion his primitive weapons, man perceived the rising sparks, he learned to retain them, and the fire first kindled for his rude feasts, became afterwards his protection against the inclemency of a glacial climate.

We possess at present but one testimony as regards the existence of man at the period of the extension of the glaciers, which gives at the same time evidence that he then possessed the use of fire.

The soil in Sweden is at present in several regions the seat of a gradual upheaving, whilst in other regions it gradually sinks, and these imperceptible oscillations had already commenced before the

glacial period. Large tracts, formerly inhabited, disappeared beneath the waters of the Baltic, the sea had covered them with sand and shell banks; large floating islands detached from the glaciers of the Scandinavian Alps ran aground upon these shoals. When now the time arrived for the fusion of the glaciers, the erratic blocks which they had transported sank to the bottom, and the waters again covered its banks with shells. Then the soil so long submerged again began to rise. The erratic blocks first rose above the level of the sea, after them appeared the shell-banks, then the sand-banks, and finally, the primitive soil emerged in turn after a period of submersion of which it is impossible to estimate the duration.

How much time was not required before this region emerged from the sea could have become habitable, before the thick shroud of sand which rendered the surface sterile, was covered with humus, in order that man should find his means of subsistence, have prospered and multiplied beyond measure, so that Scanzia was called by the ancients the great workshop of peoples, *Scanzia officina gentium* (Jornandès)! And nevertheless, this period is very short compared with that which has elapsed from the commencement of the glacial period to the fusion of the ice. M. C. Martens has told you how the glaciers are formed and how they disappear. It is not an excessive cold which produces them; the conditions in which they formerly were formed in regions now temperate did not much differ from those which surround us. If they finished by invading the greater part of Europe, it was only at the end of a multitude of centuries, and they retired as slowly.

Well, then, man has witnessed successively these two changes of our hemisphere; he receded step by step before the advancing glaciers, until their retirement rendered to him gradually his ancient domain, though rent and torn up. In digging a canal in the vicinity of Stockholm one of the eminences, which are named *osars*, and which at the glacial period were by the floating ice deposited upon the submerged plains of Sweden, was cut through. There, beneath an enormous mass of erratic blocks, and below the sand and shell banks, at a depth of eighteen meters, was found a circular range of stones, forming a fireplace, in the midst of which there was charcoal. What hand was it that collected those stones, and kindled that fire, unless it was the hand of man? Man then existed before that long series of phenomena described by M. Charles Martens; and yet that date, so immensely remote, is but the second date of humanity. The first is that of the diluvium, and everything

induces the belief that it is more remote from the second, than the second is from the present period. To these irrefutable proofs of the antiquity of man, others may be joined which have for a long time been discarded by prejudiced minds, but the value of which you have always recognized. Frequently, both in Europe and in America, human bones, implements made of flint, bones, or stag horn, cinders and charcoal, have been found in caverns, mixed with the remains of animals of the quaternary period. M. Geoffroy St. Hilaire has justly observed that if the bones of any other animal than those of man had been found under similar circumstances no one would have dreamt to deny their antiquity. But he adds, as the co-existence of man with the extinct animals could not be admitted without undermining a doctrine so deeply rooted in science, as well as in theology, the mind was tortured to find reasons for non-acceptance; and the most various and sometimes extremely improbable hypotheses were imagined, to explain how these human bones were subsequently transported into these caverns. This was the opinion three years ago of the illustrious colleague whom we have lost. A few days after he showed us a staghorn arrow, found by M. Alfred Fontan in a cavern, where also two human teeth and the remains of several extinct animals were found. This arrow, notched at the edges, presented upon one of the surfaces little grooves, probably as M. Lartet supposes for the reception of poison. This fact, accepted by so cautious an observer as M. Geoffroy St. Hilaire, by so expert a geologist as M. Lartet, has greatly struck you; and when afterwards you heard of the human skulls found by M. Schmerling and M. Spring, in the caverns about Liège, of those found by Mr. Aymard in the osseous breccia of Mont Denise, of those found by M. Lund in the caverns of America, you evinced no incredulity; but you would perhaps have evinced greater hesitation if the discovery of M. Boucher de Perthes had not previously prepared you for accepting these multiplied evidences in favour of the antiquity of man. It must be confessed that the prejudices prevalent some years since, among all classes, and even among scientific men, were of such a nature that they could only be removed by an accumulation of evidence.

In order to remove these prejudices it was not sufficient to show that human remains are frequently intermixed with the bones of so-called antediluvian animals; for it was objected that man might have entered the osseous caverns long after the extinction of these animals; that ferocious beasts, subterraneous currents might subsequently have imported fragments of his skeleton, or that they might have been

introduced by crevices; and when it was shown that, applied to some special cases, all these interpretations were false, there remained yet that intangible objection, that some unknown cause may have disturbed the soil of the caverns. A question thus put could only be solved by a different mode of investigation. It was now requisite to search for the traces of man no longer in caverns, of which the evidence was rejected, nor in the osseous breccia, but in the quaternary formations, *in situ*, in beds which neither were nor could have been disturbed, since they have preserved their relations with the superficial and lower strata. It was then that M. Boucher de Perthes commenced in the diluvium of the Somme those long and difficult researches of which he has given you a history, in his letter of the 17th of November, 1859.

It is in this ancient and deep bed, which has remained undisturbed for a frightfully long series of centuries, that he, and so many after him, have found the flint implements used by man in combating the monsters of another period, intermixed with the remains of the rhinoceros and the mammoth.

This time the demonstration was complete; but to render it more palpable, more striking, and to render it safe from the last objection of sceptics, a crowning proof was required; it was requisite to discover in the fossiliferous diluvium not merely the remains of man's industry but the remains of his body. None of you doubted that ultimately this final evidence would be produced. Yet years elapsed without your expectation being realized. Who was to be the happy explorer whom chance would enable to ally his name with the discovery of the fossil man? Gentlemen, there is justice sometimes in destiny; this good fortune was reserved to the man who has devoted twenty-five years of his life to the demonstration of one of the greatest truths in science, who, for a long time railed at, or what is worse, treated with contempt, had to struggle against universal prejudices, but who by his perseverance and courage received first some tardy support, until at last this depressed truth broke forth in science. M. Boucher de Perthes has the glory of having finished the edifice of which he has laid the first stone. What must have been the joy of this venerable man, when he was called upon to extract from the diluvial bed the celebrated human jaw which our learned president has some days since shown you. The clear and complete exposition of M. de Quatrefages, the history of the objections raised in London, and which have ended in the formation of an international commission, all this has produced in you a profound conviction of the authenticity of the

fossil jaw; and you have remembered with pride that M. Boucher de Perthes has been for three years one of the six honorary members of your society.

Gentlemen, when, four years ago, some of us formed the project of founding an anthropological society, doubts were raised as to the possibility of success; we were threatened with the indifference of the public. We were, however, not discouraged, and we were right. We were then nineteen; we are now two hundred. Let us then proceed resolutely.

As for myself, gentlemen, I must apologize for having so long occupied your attention; but I cannot quit this tribune without thanking you for the honour you have done me by appointing me general secretary. You might have chosen a worthier, but not a more devoted one.

ON THE SUPPOSED INCREASING PREVALENCE OF DARK HAIR IN ENGLAND.

By JOHN BEDDOE, M.D., F.A.S.L., &c.

FOREIGN ASSOCIATE OF THE ANTHROPOLOGICAL SOCIETY OF PARIS.

It is the opinion of some scientific,* and of many unscientific observers, that light hair is gradually becoming less common in England than it used to be; and, while some confine the bearing of this statement within the limits of their own lifetime and observation, others extend it to previous centuries, attaching great importance to the terms in which our Saxon, Danish, and Norman† ancestors are described as having red, yellow, or other light shades of hair.

I do not wish to discuss, in the present article, the question whether this opinion has any foundation in fact. Some light might be thrown upon it by a careful examination of the national and other portrait galleries; and I incline to think that the portraits of the worthies of the sixteenth century would lend some little support to the notion. I merely wish to point out that if the fact be so, or so far as it is so, it may be accounted for by other causes than those which have usually

* *E. g.* of Mrs. Somerville, *Physical Geography*.

† Dr. Bird, of Swansea, informs me that the chapel of the Anglo Norman garrison at Brecon was anciently known as "the chapel of the red haired." This is a rather striking fact, as red hair is not uncommon among the South Welsh themselves at the present day.